



**Federal Communications Commission
Enforcement Bureau
Office of the Field Director
445 12th St, S.W.
Washington, D.C. 20554
July 27, 2016**



**ADVISORY NOTICE
5 GHz INTERFERENCE TO PATRICK AIR FORCE BASE
AND CAPE CANAVERAL AIR FORCE STATION TRACKING RADARS**

The Office of the Field Director, Enforcement Bureau, Federal Communications Commission (FCC) and the 45th Space Wing, Air Force Space Command, Space Communications Squadron, Frequency Control and Analysis have been investigating harmful interference to military radar operating in the 5 GHz frequency band¹ at Patrick Air Force Base and Cape Canaveral Air Force Station in Brevard County, Florida. The harmful interference affects essential safety systems and must be eliminated.

This notice sets forth the steps that must be taken to prevent harmful interference from occurring, reminds all Part 15 (unlicensed) operators that the 5 GHz band has been allocated to the Federal Radiolocation Service on a primary basis,² and that unlicensed operations must cease upon notification by the FCC that they are causing harmful interference to any authorized radio station.³

We have found that the harmful interference has generally been caused by some unlicensed wireless devices operating within the 5 GHz frequency band. This includes devices installed outdoors, at high elevations, within line-of-sight of the radar installations, and indoor operated devices. Various marine vessels moving through Port Canaveral that are communicating with land based wireless internet access points while docked and during transit also are causing harmful interference. These unlicensed operations have resulted in harmful interference to military radars.

In order to mitigate interference to military radars, operators and installers of all 5 GHz systems are strongly advised that they may not cause harmful interference to any authorized operations, including but not limited to emissions within the **5640-5800 MHz** range of frequencies (**Wi-Fi Channels 128-161**) in Brevard County, Florida.⁴ In general, unlicensed systems may not cause harmful interference and must

¹ For purposes of this Advisory, the "5 GHz band" is defined by U-NII-2C (5470-5725 MHz) and U-NII-3 bands (5725-5850 MHz).

² See 47 C.F.R. § 2.106 (Table of Frequency Allocations).

³ 47 C.F.R. § 15.5(b).

⁴ The 45th Space Wing, Air Force Space Command, Space Communications Squadron, Frequency Control and Analysis recommends that outdoor point-to-multipoint systems with antennas mounted less than 60 ft. above ground should take particular care to avoid causing interference to these channels within a radius of 35 km (22 miles)

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cease operating immediately upon notification by the FCC, even if the systems are not operating on the above range of frequencies.⁵ Failure to do so will result in enforcement action, which may include monetary penalties and seizure of equipment. In addition, all systems must be made available for inspection by the FCC upon request.⁶

Please direct questions to the FCC Enforcement Bureau Region 2 Director at (678) 293-3194, Ronald.Ramage@fcc.gov. For questions concerning Patrick Air Force Base and Cape Canaveral Air Force Station, please call (321) 853-8426 (available 24/7).

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surrounding Cape Canaveral and Patrick Air Force Base radars (Radar (1): 28° 28' 42" North Latitude, 80° 40' 29" West Longitude; Radar (2): 28° 13' 34" North Latitude, 80° 35' 58" West Longitude; Radar (3): 28° 28' 54" North Latitude, 80° 34' 35" West Longitude; and Radar (4): 28° 25' 29" North Latitude, 80° 39' 51" West Longitude). For heights between 60 ft. and 100 ft. above ground, the distance will increase to 40 km (25 miles). For heights greater than 100 ft. above ground, the approximate line-of-sight distance in uniform terrain is the square root of the height in feet multiplied by 1.4. An additional 10 miles must be added to account for the radar line-of-sight. For example, 150 ft. above ground would yield 12.2 (square root of 150) times 1.4 which is 17, plus 10 for a total distance of 27 miles surrounding either location. This recommendation also applies to point-to-point systems with antenna main beams in the direction of the radars located at the sites noted above.

⁵ As mentioned above, under Section 15.5(b) of the Commission's rules (Rules), operation of an intentional, unintentional, or incidental radiator is subject to the conditions that no harmful interference is caused and that interference must be accepted, and the operator of a radio frequency device shall be required to cease operating the device upon notification by a Commission representative that the device is causing harmful interference. Operation shall not resume until the condition causing the harmful interference has been corrected. 47 C.F.R. § 15.5(b).

⁶ Section 15.29(a) of the Rules states that any radio frequency equipment or device, together with any certificate, notice of registration, or any technical data required to be kept on file by the operator, supplier, or party responsible for the equipment or device's compliance must be made available for inspection by a Commission representative upon reasonable request. 47 C.F.R. § 15.29(a).